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Stress Level in Red Tilapia Hybrid (*Oreochromis*Sp.) Treated with Chemical and Nonchemical Anesthesia

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Abstract

Red Tilapia hybrid, *Oreochromis* sp., is one of the most reared food fish due to its good growth and high tolerence to adverse condition. Aquatic animals can be easily stressed by physical disturbances such as handling and anesthesia. Stress is the response in the form of a suite of neuroendocrine events that is activated by a perceived threat and whose purpose is to protect any physiological imbalance or to reestablish homeostasis. In aquaculture, anesthetic protocol can be commonly divided into two, i.e. chemical and non-chemical anesthesia, which are the MS-222 and hypothermia, respectively. In this study, Red Tilapia hybrid (n=45) were exposed to chemical and non-chemical anesthesia using MS-222 and hypothermic method, respectively. Their stress level was determined by measuring the plasma glucose level and hematology. Non-chemical method which is the hypothermia showed the highest glucose level followed by MS-222 and control groups. This showed that the non-chemical anesthesia was more stressful than the chemical anesthesia. However, there were no significant observation in haematology.

Keywords: Tilapia, MS-222, hypothermia, stress response, blood glucose, hematology